

IN THE SPECIFICATION

Please amend the specification as follows, wherein insertions are underlined and deletions are indicated with strikethrough or double brackets.

Please delete the word “DESCRIPTION” found at the first line of page 1, above the title.

Please add the following new paragraph immediately prior to paragraph [001]:

CROSS-REFERENCE TO RELATED APPLICATIONS

[000] The present invention claims priority under 35 USC 119(a)-(d) and 365(b) based on Japanese patent application No. 2003-082134, filed on March 25, 2003. The subject matter of this priority document is incorporated by reference herein.

Please replace paragraph [002] with the following amended paragraph:

[002] Heretofore, a welding system for welding vehicle body frames, for example, has a plurality of welding stations with welding robots. Vehicle body frames are positioned on jigs, and are supplied from a workpiece feed path to the respective welding stations where the vehicle body frames are welded.

Please replace paragraph [003] with the following amended paragraph:

[003] ~~The jigs~~ Jigs for positioning the vehicle body frames in the welding stations ~~need to be provided~~ are required for each of the various respective vehicle body frames. The positioning relationship between the vehicle body frames supplied to the welding stations and the welding robot differs depending on the combinations of the types of the vehicle body frames and the types of the jigs

and welding robots corresponding to the vehicle body frames. Therefore, it is necessary to provide as many dedicated jigs as the number of the combinations. As the number of types of vehicle body frames and the number of types of welding robots increase, more types of jigs are required, resulting in an increase in the cost of the facilities. Furthermore, since the positional relationship between each jig and each welding robot needs to be adjusted once in every two or three months, the management process for ~~keeping~~ maintaining positional accuracy is complicated and troublesome.

Please replace the heading immediately prior to paragraph [006] with the following replacement heading:

SUMMARY

Please replace paragraph [006] with the following amended paragraph:

[006] It is an object of the present invention to provide a positioning jig device which is capable of highly accurately positioning a vehicle body frame ~~highly accurately~~ using a minimum number of required positioning jigs ~~required~~ depending upon the types of vehicle body frames only.

Please replace paragraph [012] with the following amended paragraph:

[012] FIG. 2 is a side elevational view of the welding system of FIG. 1 showing the manner in which a vehicle body frame is positioned by a positioning robot and a positioning jig holder mechanism in a welding station;

Please replace paragraph [013] with the following amended paragraph:

[013] FIG. 3 is a perspective view of the welding system of FIG. 1 showing the manner in which the

vehicle body frame is positioned by the positioning robot and the positioning jig holder mechanism in the welding station;

Please replace paragraph [014] with the following amended paragraph:

[014] FIG. 4 is a cross-sectional view of the welding system of FIG. 1 taken along line IV - IV of FIG. 1; and

Please replace paragraph [015] with the following amended paragraph:

[015] FIG. 5 is a cross-sectional view of the welding system of FIG. 1, partly omitted from illustration, taken along line V - V of FIG. 1.

Please replace the heading immediately prior to paragraph [016] with the following replacement heading:

DETAILED DESCRIPTION OF THE INVENTION

Please replace paragraph [023] with the following amended paragraph:

[023] An engaging member 114 is disposed on an end of the joint arm 48 of the positioning jig 20. As shown in FIG. 5, the engaging member 114 has an opening 116 and a recess 118 having ~~a spread inner space~~ an inner space that is wide relative to the recess 118.

Please replace paragraph [028] with the following amended paragraph:

[028] The rod 160 has a flange 162 on an end thereof for engaging the support sleeve 154 to prevent the rod 160 from being removed from the support sleeve 154. The rod 160 has a hole 164 defined in

the end thereof and ~~housing~~ houses therein a helical spring 166 (resilient member) for normally biasing the rod 160 to move in a direction so as to project outwardly from the support 134. The support 134 has a vent hole 168 communicating with the oblong hole 152 and vented to the outer space. Air can flow through the vent hole 168 into and out of the oblong hole 152 for allowing the rod 160 to be easily displaced with respect to the oblong hole 152.

Please replace paragraph [029] with the following amended paragraph:

[029] A cylinder 170 is disposed on the other end of the rod 160. The cylinder 170 is capable of ~~moving~~ rotational movement so as to drive two confronting sets of engaging members 172, 174, 176, 178 toward and away from each other in a direction substantially orthogonal to a longitudinal axis of the rod 160. The engaging members 172, 174, 176, 178 have respective teeth 180 for engaging ~~in~~ the recess 118 defined in the engaging member 114 that is disposed on the joint arm 48 of the positioning jig 20.

Please replace paragraph [036] with the following amended paragraph:

[036] The positioning robot 22 is actuated to displace the engaging member 114 disposed on the end of the joint arm 48 of the positioning jig 20 in the direction indicated by the arrow F in FIG. 5 until the teeth 180 of the engaging members 172, 174, 176, 178 of the positioning jig holder mechanism 24 are inserted into the recess 118 in the engaging member 114. At this time, since the rod 160 which supports the engaging members 172, 174, 176, 178 is displaceable in the directions indicated by the arrow ~~[[F]]~~ H by the helical spring 166 disposed in the oblong hole 152 in the support 134, shocks produced when the engaging member 114 and the engaging members 172, 174, 176, 178 engage each other are absorbed.

Please replace paragraph [037] with the following amended paragraph:

[037] Then, the cylinder 170 is actuated to ~~bring~~ separate the engaging members 172, 174, 176, 178 by moving them away from each other, whereupon the teeth 180 engage the engaging member 114 to join the end of the positioning jig 20 to the support 134. As a result, the positioning jig 20 to which the vehicle body frame 12 is fixed has one end held by the positioning robot 22 and the other end by the positioning jig holder mechanism 24. Thereafter, the securing pin 140 is removed from the brackets 144, 146 of the support 134, allowing the support 134 to swing about the rotational shafts 130, 132 in the directions indicated by the arrow G.

Please delete the heading immediately prior to paragraph [041].